IV.—ON THE DISTINCTION BETWEEN REAL AND VERBAL PROPOSITIONS.

By E. T. Dixon.

There is one question, and it seems to me about the most important question which Logic is competent to determine, which has never, so far as my knowledge of the literature of the subject extends, been adequately discussed by professed logicians. Every one will admit that language, properly used, is capable of conveying information; that ~~is~~, that some propositions do definitely assert matters of fact, either truly or falsely. On the other hand ~~it is~~ equally evident that some propositions have not this function, as for example the propositions commonly referred to by logicians with a certain contempt as 'identical propositions,' and definitions which only tell us something about the way it is proposed to use certain terms. It is not a little remarkable that the ordinary text-books hardly discuss the question what truths are real and how are they to be distinguished from those which are merely arbitrary—indeed they are not even agreed as to the answer, for it sometimes happens that what one logician maintains to be an assertion giving real information, another regards as an identity or definition. This is notably the case with what are called the fundamental Laws of Thought. But the discussion of this question is distinctly within the province of Logic, for it is intimately bound up with the subjects of Definition and Existential import which are discussed more or less fully in all text-books. It is also closely connected with the distinction which some logicians recognise between Formal and Material truth, which Mill dances round in a manner so peculiarly his own in his examination of Sir W. Hamilton's Philosophy (ch. xxiii.). Mill here refuses to recognise anything but real truth, and of course if he chooses not to apply the name 'truth' to such an assertion as that any two quadrics in a plane intersect in four points, he cannot be compelled to do so—but such assertions cannot on that account be excluded from the purview of Logic. The fact is that there is an important distinction between real and arbitrary truths, though neither Mill nor his opponents in argument seem to have grasped it in their discussions about formal and material truth. It was said, vaguely, that formal truth consisted only in consonance with the laws of formal thought; it was said that 'what is non-contradictory and consequent is formally true'. But this hardly goes to the root of the matter. Are the 'laws of thought' themselves formal or material truths? If a formal truth is consequent, *i.e.*, deduced from some other proposition, does it matter whether that proposition is itself formal or material, true or false?

But it would be useless to refute at length views which perhaps no one now entertains. It will be better for me to state as concisely as possible the views I support, and even if it should turn out that they are already embodied in some text-book that I have not come across, no harm will have been done. But if they should not find acceptance, I hope some older logician will take the opportunity of expounding the orthodox views, and explaining why the ordinary sources of information are so singularly silent on the subject.

I believe that, whatever it may be in theory, it is practically impossible to conceive a thing without any attributes, or an attribute except as pertaining to some thing. Whenever any concept is clearly before the mind, it always has both denotation[1] and connotation. But we may confine our attention to the one, and treat the other as an immaterial accessory. Thus we might make an argument about colours, picturing to ourselves the colours as painted on boards, and yet recognise that the boards, and even the paint, were immaterial to the argument, so that the conclusions applied equally to any other similarly coloured objects. This fact has been noticed and objectified into a Principle (with a capital P) of Equivalent Forms; but there is nothing to be gained by obscuring a simple fact under such a high-sounding title—the fact simply being that the argument was concerned with connotations only, and might have been conducted verbally without assigning any denotation whatever to the words, and that therefore the conclusion is equally applicable to any denotation which the words may bear.

The process of separating an argument about connotation from irrelevant denotation may perhaps be carried out in more ways than one. The most obvious way seems to be as follows. Names which are well understood must be regarded not merely as marks of real or imaginary things, nor merely as marks of attributes, but as connecting links between certain things and certain attributes; so that to understand any term well is to possess real information. Thus every term, by the time it is well understood, possesses both connotation and denotation. It is also clear that its meaning is to some extent arbitrary, and may be settled by its definition, but that the definition once laid down there remains another part of the meaning, the discovery of which is a gain of real knowledge. We may lay it down arbitrarily that a given term shall denote any given set of things, or connote any given set of attributes, but having done so it is no longer in our power to determine what attributes it shall connote, in the first case, or what things it shall denote in the second. The arbitrary part of the meaning of a term I shall call its *definition*, and the remaining part of its whole meaning its *import*. Thus by its definition I mean either the extension of the term or its intension, whichever is laid down arbitrarily, including not only those items of denotation or connotation explicitly mentioned in the assertion which determines the meaning of the term (which may be called the ‘ stated definition’), but every item which may be formally shown to be implied by that assertion.

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[1] To avoid circumlocution I shall always speak of 'things' as denotation (whether objective or subjective) and attributes as connotation. Thus I should say that 'whiteness' connotes the same attribute as 'white things,' not that it denotes what 'white things' connotes.

It follows from this that any item which can be formally deduced from the stated definition of a term is just as arbitrary as the stated definition itself was, and if we have any assertion whose truth can be deduced from the stated definitions of its terms, it is not a real assertion, and conveys none but verbal information; and conversely, if we wish to ascertain whether a given proposition ‘A is B’ is real or only verbal we must examine the stated definitions of ‘A’ and ‘B’ and see whether they are formally dependent upon one another or not. If they are independent the proposition is a real one, whether true or false: but even if they are not, the proposition may still be useful, as the expression of a verbal connexion which was not at once obvious from the stated definitions of the terms. Further, as the connexion between denotation and connotation cannot be arbitrary, for we cannot arbitrarily decide whether certain things shall, or shall not, have certain attributes, we can never deduce any facts of denotation from definitions by connotation, or *vice versâ*, nor can any conclusion be deduced from two definitions, one of which is by denotation, and the other by connotation, without the aid of some real proposition to connect the two. Consequently the only use of formal reasoning may be said to be to elucidate the full effect of the stated definitions of terms; and to argue formally with terms which are ‘ well understood,’ that is, whose definitions and imports are well known, is waste of time. For if the truth of any assertion about such terms is not at once obvious, no process of formal argument can possibly establish it.

If a proposition is advanced and disputed, it may be that the disputants are agreed as to the definitions of its terms, and are really disputing a matter of fact. If so the dispute must be settled by other methods than those of formal logic. But as a rule no formal definitions will have been laid down, and it is then open to either disputant to call on the other to define his terms. If one of them does so a formal argument may follow as to whether the definitions are or are not independent, *i.e.*, whether the proposition was or was not a real one. It may even be shown to contain a contradiction in terms. If neither of the disputants advance definitions, they may indeed seek to show that the proposition depends on some other proposition or propositions, but ultimately the difference of opinion must turn out to rest either on the truth or falsity of some real proposition, or on a difference as to the meaning of certain terms, neither of which differences can be determined unless formal definitions are given.

Now the same term may often be defined in different ways, so that the same proposition may in the mouth of one speaker be real, and in that of another 'a truism' or verbal assertion. But if any one wishes to maintain that a given proposition is a real one, the *onus probandi* lies with him—he has only got to state the definitions of his terms and show that they are independent and the thing is done. If he cannot do this the proposition itself may be taken as partially defining one or more of its terms, for if it is accepted no meaning can afterwards be assumed for any doubtful term it contained, in virtue of that acceptance, which cannot be formally shown to be implied by it. For example, it has been maintained that Euclid's Axiom 'Two straight lines cannot enclose a space' is only a partial definition of 'straight line'. This would be correct if Euclid had not previously given a definition, but as this definition implies that a line is a real object having length without breadth it cannot be arbitrarily asserted that there is a kind of line such that two of them cannot enclose a space. Again, if it is to be maintained that Newton's laws of motion are real propositions, independent definitions must be found for the terms 'force,' 'uniform motion,' and so on, for until such definitions have been given all the 'laws' do is to tell us something about the way Newton uses those terms. It is not of course to be inferred that the conclusions of Astronomy, in which calculations based on these laws are made use of, convey no real information, but the reality is given to these conclusions quite apart from the laws of motion, by such laws as that of gravitation which is real, and not a truism.

This way of looking at reasoning is so simple, and probably so nearly the way most practical men look at it, that it may seem unnecessary to dilate upon it. But as a matter of fact it is very different from the methods expounded in the ordinary text-books of logic. Dr. Venn, for example, in his *Empirical Logic* commences by stating a number of 'Postulates' on which he bases his system. The third of these is to the effect that words used in reasoning are to be taken to have the same meaning for all disputants. If this means that all words are to be taken to be 'well understood,' or at least equally well understood to all the disputants both before and after the argument, we have already seen that it would render formal reasoning entirely superfluous. In another place he says: 'By admitting that the demand for a definition is a sort of *right* instead of a merely occasional concession to our mental indolence or frailty, logicians inevitably provoke a continued repetition of such a demand, and then the question arises: Where are we to stop? . . . The true answer is: You have no right to a Definition at all: the mere fact that you ask for one is in itself an admission of the general truth of our postulate about language. . . .'[1] Rather, I should say, it is the refusal of the definition which is based on the postulate; the demand directly implies its falsity, in the given instance at least. Dr. Venn does indeed admit that it is sometimes false; where I differ from him is in holding that if it were otherwise, formal logic would have no *raison d'être* at all. The answer I should give to his question: Where are we to stop? is: Whenever we come down to terms about whose meaning we are sufficiently agreed, *i.e.*, which may be considered 'well understood' for the purpose in hand. Of course his postulate is so far true that if there were no such terms argument would be endless; but if there were no others it would be useless. Again, Dr. Venn believes that purely verbal arguments are extremely rare. Even if he meant arguments entirely unconnected with real applications, the whole of pure mathematics and symbolic logic may be regarded as purely verbal arguments, and so also might probably the greater part of the arguments of past and present logicians and metaphysicians. Possibly, nay probably, if I had the opportunity of discussing my differences of opinion with Dr. Venn, the argument would in the end turn out to be purely verbal. Mr. Johnson has maintained that there is an essential difference between the subject and predicate of a proposition, in that something can always be predicated of a subject, whereas there may be predications which cannot be made of any subject.[1] He says 'a subject is that of which something must be predicable'. This, surely, cannot be anything but a verbal assertion. I accept it as a partial definition of 'subject'. Naturally I should have expected after this that a 'predication' was that which had been predicated of a subject? But on further examination it appears that the difference between subject and predicate in Mr. Johnson's view is far deeper than appears by saying there are predicates without subjects though there are no subjects without predicates. For to him a subject is a noun, a predicate only an adjective or equivalent phrase. On this interpretation the syllogism could not be illustrated by Euler's diagrams! It is evident therefore that if I had entered into an argument with Mr. Johnson about the reciprocal position, or otherwise, of subject and predicate, it would have turned out to be a purely verbal one, and Mr. Johnson could at any time have put a stop to it by stating his definitions of 'subject' and 'predicate'.

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[1] *Empirical Logic*, p. 280.

If an assertion is accepted by both parties to a discussion it may be unnecessary to define the terms, that is it may be assumed (to save time) that in this case Dr. Venn's postulate holds, though the deductions subsequently drawn from the assertion may show that after all the assumption was rash. But if ever an assertion is disputed the first step should always be to demand or give definitions, or at least ascertain whether the assertion is intended as a truism or not. For the process of giving or discussing the definitions will do all that formal logic can do to clear up the matter in dispute. Consider for example the assertion, 'Thought is impossible without language'. In the senses in which the words thought and language are commonly used this assertion is not only not a truism but it is not true. I might define 'thought' as 'a train of concepts passing through the mind which are noted and directed by consciousness'. The ordinary meaning of language might be stated to be 'any code of signs by which the sequence and relation of concepts in the mind are communicated from one individual to another'. This definition is sufficiently wide, as it may include a canine language, or a language of ants. But it would be absurd to suppose that if a being had never tried to communicate with his fellows that he could never have noted or directed the train of concepts passing through his mind! But by a slight change of definition it is easy to make the original proposition not only true but a truism. If we include in language 'any code of signs, whether objective or subjective, by which the sequence and relation of concepts in the mind are noted and directed,' it follows that there can be no thought without such. But it may be doubted whether in this case the proposition would justify the conclusions which philologists seek to draw from it.

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[1] MIND, O.S., No. 1.

But there is a yet more important consequence which results from the view of the arbitrary nature of formal logic I am advocating. It is that the old classifications of propositions and sciences must be modified. The old division of propositions was into analytic and synthetic of knowledge into *a priori* and *a posteriori*. But we have seen that the primary distinction, from my logical point of view, at any rate, between propositions is that between real, and arbitrary or verbal propositions; and sciences must therefore be classified according as their conclusions belong to the one category or to the other. A truism being purely arbitrary cannot be called a 'judgment' at all, either analytic or synthetic. 'Judgment' might indeed be defined as the act of assenting to real assertions, or of admitting the connexion between certain connotations and denotations, and a science based on definitions alone calls for no act of judgment at all. Pure mathematics and symbolic logic are such sciences (when properly expounded); and hence the 'certainty' of their conclusions. Formal reasoning may assist us in forming a judgment by putting before us clearly all that is implied in the denotation and connotation we seek to connect, but it can never supply the connecting link. This fact of fundamental importance is frequently overlooked, even in the nineteenth century, and is still more frequently confused with that other fact of scarcely less importance, which is associated with the name of Bacon, namely, that we cannot discover anything about the objective world by a mere examination of our own subjective consciousness, and *a priori* reasoning. The knowledge we obtain by such introspection is very different from 'mathematical certainty'; it is very real knowledge; the so-called *a priori* judgments are many of them true judgments; but they are separated by as impassable a gulf from truisms, as objective facts are from them. For such subjective judgments are formed by direct apprehension and comparison of real concepts actually present to the mind. As long as care is taken to express them in language which shall not appear to give them an objective character they may be asserted with absolute confidence, and yet are in no sense arbitrary. Though we cannot say with certainty that material space is 'Euclidian,' yet we can say absolutely that the space we are accustomed to conceive is such, and is not, for example, a Lobatchewskian space, or a space of four dimensions. Lobatchewsky and Riemann have not shown that when I picture to myself the figure of Euclid's I. 29, that picture may be different from what I suppose it to be, but only that if I try to realise my picture on the blackboard it may be that I shall not be able to do so. It is as absurd to think that it is possible to discover the nature of concepts by formal reasoning alone, as to think with Descartes that by forming concepts alone we can discover the nature of the objective universe.

It is unnecessary, and would be foreign to the purpose of this article, to emphasise the distinction between objective and subjective knowledge, between the more or less satisfactory hypotheses on the one hand, and the inadequate and inconclusive, but indisputable, knowledge on the other. This has been amply discussed by logicians elsewhere, but the points I wish to bring out, the essential distinction between both these kinds of knowledge, and purely formal conclusions such as those of mathematics, and the simple way in which any proposition may be relegated to the one category or the other, are, I think, deserving of more attention than they commonly receive at the hands of logicians.